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TYPE AND TYPE LOCALITY OF THE GULF COAST SPINY SOFTSHELL TURTLE, *TRIONYX SPINIFER ASPER* (AGASSIZ)

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The currently accepted type locality of *Trionyx spinifer asper*, Lake Concordia, Louisiana, is in an area of intergradation between three subspecies of *Trionyx spinifer*. Of the nine available syntypes of *asper*, none has been designated as a lectotype, and only one of the syntypes of *T. s. asper* is recognizable as belonging to that taxon.

Abbreviations of names of museums from which specimens are mentioned are: KU, Museum of Natural History, University of Kansas; MCZ, Museum of Comparative Zoology, Harvard College; SM, Strecker Museum, Baylor University; TU, Tulane University; and USNM, United States National Museum.

Agassiz (1857:406) described *Aspidonectes* (= *Trionyx*) *asper* as having:

“ . . . very coarse and large tubercles of the front and hind part of the carapace, which extend, behind, even over the bony shield, and are there supported by prominent warts of the bony plates. These bony warts exist in no other species with which I am acquainted: their form is very irregular, sometimes oblong and sometimes orbicular; they also project more or less. Another marked peculiarity of this species consists in the greater bluntness of the extremities of the jaws, which are more rounded than in *Asp. spinifer*. The jugal arch is also broader. The difference between the males and the females is more striking in this species than in any other, the males being regularly oval, whilst

the females are almost circular in their outline . . . in younger specimens of *Asp. asper* there are . . . two or three black lines separating the pale rim of the posterior margin. . . .

Several of the syntypes show "prominent warts of the bony plates" (*supra*), which appear posteriorly and principally on the seventh pair of pleurals toward the midline on the bony carapace (Plate 1). I have seen bony elevations, which are circular or elongate resembling short ridges, on the carapaces of specimens of *Trionyx ferox* (USNM 4373, 55316, 62217); a photograph of a *ferox* (Stejneger, 1944:pl. 7) clearly shows bony prominences on the posterior part of the bony carapace. These bony elevations also occur in populations of *T. spinifer* (SM 2552, 2558, Texas; USNM 54731, Iowa; USNM 100396, 100404, Louisiana). Bony warts and ridges on the posterior part of the carapace are not diagnostic for *T. s. asper*. To my knowledge, the subspecies of *Trionyx spinifer* are not distinguishable by characteristics of the skull, bony carapace or plastron.

T. s. asper closely resembles the subspecies *hartwegi* and *spinifer* but differs in usually having two or more blackish lines paralleling the rear margin of the carapace, and usually in having the postocular and postlabial stripes united on the side of the head. Other characters mentioned above by Agassiz seem not to be of taxonomic worth.

Agassiz (*op. cit.*:405-06) did not designate a type, mention precise localities, or state the number of specimens that formed the basis of his description of *Aspidonecetes asper*. Baur (1893: 220) restricted the type locality of *asper* to Lake Concordia, Louisiana, but did not mention any specimens; presumably Baur's action was based upon an examination of the bony carapace of USNM 012349, which shows the prominent bony ridges described and considered diagnostic by Agassiz and has "Lake Concordia, Louisiana" written in ink on the underside of the carapace. Barbour and Loveridge (1929:225) listed MCZ 1597 and 1622 as cotypes. Stejneger (*op. cit.*:56-58) discussed some of the syntypes of *asper*, and also regarded the type locality as "Lake Concordia, La.," designating USNM 12349 (= 012349) and MCZ 37173 as "cotypes." The type locality of *T. s. asper* is currently accepted as Lake Concordia, Louisiana (Schmidt, 1953:109).

T. s. asper intergrades with *T. s. hartwegi* and *T. s. spinifer* in the lower Mississippi Valley (Conant and Goin, 1948:11).

The softshell turtles inhabiting the Mississippi River and its tributaries in Louisiana (including Lake Concordia) and Mississippi represent an intergrading population of *spinifer* and *hartwegi*, and, to a lesser extent, *asper*. Most turtles from the Pearl River drainage and rivers that drain into Lake Ponchartrain adjacent to the east are typical of *asper*. Lake Concordia is a large oxbow on the west side of the Mississippi River in Concordia Parish, Louisiana. I was a member of a field party, from Tulane University, which collected three specimens (TU 16524, 16524.1, 16524.2) of *Trionyx spinifer* from Lake Concordia on August 1-3, 1954. Because none of these turtles has the postocular and postlabial stripes united on the side of the head or any indication of more than one marginal line paralleling the rear margin of the carapace, none is considered referable to *asper*.

Some of the nine syntypes discussed below were mentioned by Stejneger (*op. cit.*:57-58).

(1) USNM 012349 (Plate 1) is represented by a bony carapace and may be considered the present type (lectotype), although never designated as such. "Trionyx Ferox?, Lake Concordia, Louisiana, BLC Wailes, 1851" is written in ink in the same handwriting on the underside of the bony carapace. Subsequently, "Ferox?" has been crossed out and "asper" added in pencil, and "012349" inked on the second pleural. A gummed label is pasted on the fifth rib, right side, and bears the inscription "asper Ag. (Type)." There is also an attached metal tag bearing the number 22676. The carapace has a maximal length of 14.9 cm. and width of 12.7 cm.; its size suggests that it is that of a female. On the seventh pair of pleurals and in line with the longitudinal sutures of the neurals are two, short, longitudinal, elevated, bony ridges.

(2) USNM 01086 is represented by an intact bony carapace (19.8 cm. in length and 16.5 cm. in width), disarticulated parts of the bony plastron (epiplastron and preplastrum lacking), and a skull including the lower jaw. There is an attached paper tag labeled "cotype." "Miss." is written in ink on the underside of the carapace. There are small, slightly-elevated bony warts on the sixth pair of pleurals (with few, less conspicuously developed, on the seventh pair), and a semblance of ridging as seen on the carapace of USNM 012349. "Washington Lake" (crossed out in pencil), and "1086" are written in ink on the skull, which has a basiscranial length (occipital condyle to tip

of upper jaw) of 62.8 mm. The locality "Washington, Adams Co." is written in pencil on the card for USNM 01086 in the card file in the USNM. The specimen is certainly a female judging from the size of the skeletal parts.

(3) USNM 01084 is represented only by the skull (lacking lower jaw) of a female, which has a basiscranial length of 63.1 mm., and the number "1084" and "Wash." inked on it. The skull is presumably from the same locality as USNM 01086.

(4) MCZ 46621 is represented only by the skull (lower jaw present) of a female having a basiscranial length of 63.0 mm.; it was received from B.L.C. Wailes.

(5) MCZ 1622 has been photographed by Stejneger (*op. cit.*: pl. 16), who mentioned a label in lead pencil, "No. 1622. *Type* *Amyda asper* (Agassiz) Lake St. John, Miss. W. Sargent leg. et don." (which I have not seen) (*op. cit.*:58). Stejneger suggested that Lake St. John was in Louisiana (*op. cit.*: footnote 2); however, the caption for Plate 16 reads Lake John, Florida. Goin (1948:304), commenting on the last-mentioned locality, wrote that MCZ 1622 "... is listed in the museum catalogue as having come from Lake St. John, Mississippi." Lake St. John is a few miles north of Lake Concordia occurring in Concordia and Tensas parishes, Louisiana, in the Mississippi River drainage.

MCZ 1622 is a young alcoholic specimen, probably a female, having a plastron 5.0 cm. in length, and a carapace 6.8 cm. in length and 6.0 cm. in width. The postlabial and postocular stripes do not join on either side of the head. The undersurface is more heavily pigmented than that which I judge to be "normal" for *T. s. asper*. The most significant character is the lack of more than one dark marginal line posteriorly on the carapace: there are small blackish dots posteriorly but these are widely-separated and not closely-set in a linear fashion to suggest a second marginal line. Neill (1951:19-20) believed this specimen to show "... some approach to *spinifera*." I do not regard this specimen as representative of *T. s. asper*.

Schwartz (1956:15), however, referring to MCZ 1622, stated that it "... differs in no way, so far as head and carapace pattern is concerned, from similarly sized specimens of *T. s. agassizi* (= *asper*) from South Carolina and Georgia." It would be surprising to find specimens from South Carolina and Georgia having a pattern on the carapace resembling that of MCZ 1622: Schwartz's photograph of a juvenile from South Carolina (*op. cit.*:14, pl. 3) is certainly *asper*.

(6) MCZ 46633 bears the locality "Washington, Mississippi" written in ink on an attached paper tag. In a different hand, the data "Washington, Miss. Pres. by B. L. C. Wailes" and the number "9" is written in ink on an unattached, folded piece of stiff, brownish paper that is held in place by a metal rod against the plastron. The data suggest that this specimen is from the same locality as USNM 01084 and 01086.

MCZ 46633 is a stuffed, adult male having a plastron approximately 11.0 cm. in length and a carapace 16.0 cm. in length. The postlabial and postocular stripes fail to join by a narrow segment on the left side of the head, but appear to be in contact on the right side. Bony, longitudinal welts, resembling those on the bony carapace of USNM 012349, appear posteriorly on the seventh pair of pleurals. The carapace is darkened laterally and sprinkled with widely-spaced, black dots; there is no indication of a second marginal line. The pattern on the carapace most closely resembles that of *T. s. hartwegi*. Therefore, I do not consider this specimen to be representative of *T. s. asper*.

(7) MCZ 46615 bears an attached label having the following data written in ink: "Trionyx ferox SOUTHERN SOFT-SHELLED TURTLE Natchez, Miss. H. Wheatland coll'n." Subsequently "Trionyx ferox" has been crossed out and "Amyda aspera" written in ink; the name "spinifera" also has been added in pencil. The reverse side of this label bears the number "8" and the name "B. Chase" written in pencil. A small piece of paper also bearing the number "8" is pasted on the left side on the bony carapace. Presumably this specimen has some relationship to MCZ 46633 that bears the number 9.

MCZ 46615 is a large, stuffed adult female having a plastron that measures approximately 33.0 cm. and a carapace 43.0 cm. in length; the anterior edge of the carapace is studded with conical tubercles. Scattered, oblong, bony elevations adorn the seventh pair of pleurals. There is no pattern evident on the carapace, and the striping on both sides of the head is obscure. This large female might represent any of the subspecies *spinifer*, *hartwegi* or *asper*; there is no character that identifies the specimen as *T. s. asper*.

(8) MCZ 37173 is the stuffed specimen that Agassiz mentions having received from the University of Oxford (at Oxford, Lafayette County), Mississippi (*op. cit.*:405); the specimen is discussed by Stejneger (*op. cit.*:57). The plastron is approximately 23.5 cm. in length; the length of the carapace, wrinkled

posteriorly, measures (in a straight line) approximately 29.5 cm. Although the tail extends noticeably beyond the posterior edge of the carapace and is presumably the basis for Stejneger referring to MCZ 37173 as an adult male, its large size indicates that it is a female. A red paper label bearing the writing "A. asper Ag. Cotype" is pasted on the plastron. Elevated bony knobs appear toward the posterior margin of the bony carapace on the seventh pair of pleurals. There are well-defined stripes on the head, but the relationship of the postocular and postlabial stripes is obscure. There is no evidence of more than one dark marginal line paralleling the rear margin of the carapace. Hence the specimen is not recognizable as *T. s. asper*.

(9) MCZ 1597, a large alcoholic female, is considered representative of *T. s. asper* (Plate 2). A paper label on the left foreleg bears the inscription "Natches, Miss W. Sargent." The carapace, measuring approximately 43.0 cm. in length and 37.0 cm. in width, has more than one dark marginal line and several ocelli. Inner marginal lines in the posterior right and left quadrants are mostly continuous, but are obscured by the wrinkling and scratching on the posterior part of the carapace. The tubercles on the anterior edge of the carapace are worn and resemble rounded knobs; more lateral tubercles are equilateral. The seventh pair of pleurals are in contact medially behind the seventh neural. There are indications of raised bony welts on the last pair of pleurals. The head is partly extended, but does not show the relationship of the stripes on the side of the head. The pattern on the snout is obscured, and blackish marks are evident on the dorsal surface of the limbs. The plastral surface lacks dark markings and measures approximately 32.5 cm. in length. MCZ 1597 is discussed by Stejneger, who mistakenly refers to the specimen as a male (*op. cit.*:58). MCZ 1597 (Plate 2) is herewith formally designated as lectotype of *Trionyx spinifer asper* (Agassiz), as it alone, of the nine specimens hitherto considered syntypes of *Aspidonectes asper* Agassiz, is recognizable as referable to the subspecies *asper*.

Agassiz (1857:405) mentions having received specimens from Mr. Winthrop Sargent of Natchez, Mississippi (MCZ 1597, 1622, 46615), Dr. L. Harper of the University of Oxford, Mississippi (MCZ 37173), and Professor B. L. C. Wailes of Washington, Mississippi (MCZ 46621, 46623, USNM 01084, 01086, 012349). These localities suggest places of residence and are not necessarily localities at which the specimens were captured; at least two syntypes (MCZ 1622, USNM 012349) are from locali-

ties different from those mentioned immediately above. Although forwarded to Agassiz from Natchez, the specific locality from which the lectotype (MCZ 1597) was captured is unknown. Natchez, Oxford and Washington, Mississippi, are in the drainage basin of the lower Mississippi River, which is inhabited by softshells that are intergrades between *T. s. spinifer* and *T. s. hartwegi*, although few specimens from there are typical of *T. s. asper*. It is possible, but unlikely, that MCZ 1597 was captured at Natchez. Those syntypes having a discernible pattern on the carapace, which is not that of *asper*, probably came from tributaries in the lower Mississippi River drainage.

The lectotype, MCZ 1597, probably came from the Pearl River drainage (adjacent eastward from the Mississippi River drainage), where most individuals are representative of *T. s. asper*. Occasional specimens of *asper* from the Pearl River drainage have only one dark line paralleling the rear margin of the carapace, and resemble softshells occurring in the Mississippi River drainage. An adult male given to me by William E. Brode was stated by him to have come from the Pearl River; this turtle (KU 47120) has only one dark marginal line, and Stejneger (*op. cit.*:64) mentions another from the Pearl River drainage. Schwartz (*op. cit.*:16) and Crenshaw and Hopkins (1955: 20) write that some specimens from Georgia have only one solid line at the margin of the carapace. However, most of the softshells inhabiting the Pearl River drainage are typical *asper*, and the Pearl River drainage is probably the provenance of the lectotype, MCZ 1597.

The type locality of *Trionyx spinifer asper* (Agassiz), represented by the lectotype, MCZ 1597, is herewith designated as the Pearl River at Columbus, Marion County, Mississippi. The geographic range of *T. s. asper* (*Platypeltis agassizi* Baur considered a synonym) is the southeastern United States except peninsular Florida from the Florida parishes of Louisiana east to southern North Carolina; in streams of the Gulf Coast drainage including that of Lake Ponchartrain, Louisiana, eastward to the Apalachicola River system, and those of the Atlantic Coast drainage including that of the Altamaha River in Georgia northward to the Pee Dee River drainage in South Carolina.

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